1.33

4500
April 19, 1976
(RWU 2203)

Dr. John Brand
College of Medicine
Dept. of Microbiology
University of Iowa
Iowa City, Iowa 52242

Dear John:

I received your carton with 1/2 dram vials and letter of April 12, giving the release rates for frontalin, α-pinene, isoamyl acetate, isoamyl alcohol.

Last week I spoke to Roy Hedin and he sent over samples of frontalin and α-pinene which I shall use in the traps. He suggested about a 50/50 mixture of frontalin and α-pinene for our initial testing of the bucket traps. I will start with 0.1 ml of frontalin and 0.1 ml of α-pinene in 6 vials of our 9 vial latin square design. Three vials will be empty controls.

Before using the vials, we will acid wash them to make sure they are perfectly clean.

Will keep you posted.

Sincerely,

STANLEY J. BARRAS
Project Leader
Forest Insect Research

cc: Roy Hedin

Fik 1.33

Barras

Rec'd 4-13

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
SOUTHERN FOREST EXPERIMENT STATION
2500 SHREVEPORT HIGHWAY
PINEVILLE, LOUISIANA 71360

1630

Dr. John M. Brand
Department of Microbiology
School of Medicine
The University of Iowa
Iowa City, Iowa

April 12, 1976
(3201)

Dear John:

Enclosed is a copy of our paper which we hope to present at the ACS meeting in San Francisco. I have not received review comments yet and would appreciate your reviewing this work if you wish to do so. I would be happy to assist you in any way possible to carry on with this work. My assignment with the Forest Service is to develop chemical uses for southern pine bark, and this work was somewhat of a diversion for me which Dr. Koch endorsed because I thought that we could make some contribution to understanding of the southern pine beetle microorganism system without detracting too much from my assigned research goals. With one exception described below, I do not anticipate carrying this work further because of my commitment to work on southern pine bark uses. I do think there is considerable promise in this work, particularly in determining the biological activity of these isocoumarins related to southern pine tree growth and further definition of the beetle-microorganism system. There seems to be a misconception that these compounds are produced in small amounts. To the contrary, the phloem is simply loaded with the 3-hydroxymethylisocoumarin after perithecia have developed, and we found quite high concentrations in the blue-stained xylem as well. It remains to be shown whether these compounds are translocated to the needles, but they are water soluble and certainly there is quite a lot present in the blue-stained xylem. At concentrations of about 5 PPM, related compounds stimulate elongation of rice seedlings, while at high concentrations, 500 PPM, they seem to be phytotoxic, causing lesions in leaf veins, etc.

SJB 4/14

We did some work with Stan's 122 fungus and found one major metabolite both in liquid culture and in the infected phloem. We simply ran out of time so did not isolate it. Its chromatographic properties and

color reactions did suggest that it may be an isocoumarin derivative, but it was not one of the compounds found by Claydon in C. ulmi cultures or one of the metabolites we found in C. minor. There is a good possibility that this compound could be isolated and identified from 122 infected phloem very easily.

Wayne McGraw and I have spent considerable time researching ways to synthesize the 3-hydroxymethyl isocoumarin and feel that we may have an acceptable approach now. We had some hopes that we might be able to work with John Hodges at Mississippi State to try to define the physiological effects of this compound. I am certain that Wayne would like to carry forward with that work when he can find some spare time and obtain some funding. If it did not require too much of my time, I might be able to work with them on this. I suggest that you correspond with Wayne if you intend to work along these lines. We have a proposal written to cover the synthesis but are waiting for a cooperator to set up the physiology studies.

If I can be of further assistance to you, please let me know.

Sincerely,

Dick

RICHARD W. HEMINGWAY
Wood Scientist

cc: T. A. Harrington
S. J. Barras
P. Koch
G. W. McGraw
R. C. Thatcher